

## METHOD AND APPARATUS FOR BANDWIDTH ESTIMATION

### BACKGROUND OF THE INVENTION

#### 1. *Related Applications*

5 [0001] The present application claims priority to U.S. Provisional  
Application Number 60/296,028 filed June 5, 2001.

#### 2. *Field of the Invention*

[0002] The present invention relates to wireless communications.  
10 More specifically, the present invention relates to signal reception.

#### 3. *Background Information*

[0003] A system for mobile wireless communications may support  
communications between a base station and a mobile unit even when the  
15 mobile unit is in motion. For example, a system for cellular telephony may  
support communications even when the mobile unit is moving at a high rate of  
speed, such as in an automobile or on a train.

[0004] Relative movement between a mobile unit and a base station in  
communication may affect the characteristics of the transmission channel  
20 between them, however. Specifically, this relative movement may give rise to  
a Doppler frequency shift that results in a spreading of the transmitted signal at  
the receiver. The Doppler effect may be illustrated graphically by comparing  
spectral plots of a transmitted signal at the transmitter and at the receiver. For  
example, a pilot signal of a code-division multiple-access (CDMA) system